

WHAT IS CLAIMED IS:

1. An electro-optical device comprising a plurality of pixels including a plurality of EL elements, characterized in that:

said electro-optical device provides a gray scale display by controlling a period of time at which said plurality of EL elements emit light in one frame period;

said plurality of EL elements comprise a first electrode and a second electrode; and
a potential of said first or said second electrode changes in such a manner that a
polarity of an EL driving voltage is inverted for each one frame period,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

2. An electro-optical device comprising a plurality of pixels including a plurality of EL elements, characterized in that:

said electro-optical device provides a gray scale display by controlling a sum of lengths of sub-frame periods in which said plurality of EL elements emit light out of said plurality of sub-frame periods included in one frame period;

said plurality of EL elements comprise a first electrode and a second electrode; and
a potential of said first or said second electrode changes in such a manner that a
polarity of an EL driving voltage is inverted for each one sub-frame period,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

3. An electro-optical device comprising a plurality of pixels, said device including a plurality of EL elements, a plurality of EL driving TFTs for controlling light emission of said plurality of EL elements, a plurality of switching TFTs for controlling a driving of said plurality of EL driving TFTs, characterized in that:

said electro-optical device provides a gray scale display by controlling a period of time

at which said plurality of EL elements emit light in one frame period;

said plurality of EL elements comprise a first electrode and a second electrode; and

a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period,

5 wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

4. An electro-optical device comprising a plurality of pixels, said device including a plurality of EL elements, a plurality of EL driving TFTs for controlling light emission of said plurality of EL elements, a plurality of switching TFTs for controlling driving of said plurality of EL driving TFTs, characterized in that:

said electro-optical device provides a gray scale display by controlling a sum of lengths of sub-frame periods in which said plurality of EL elements emit light out of said plurality of sub-frame periods included in one frame period;

15 said plurality of EL elements comprise a first electrode and a second electrode; and a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one sub-frame period,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

20 5. An electro-optical device comprising a plurality of pixels including a plurality of EL elements, characterized in that,

said electro-optical device provides a gray scale display by controlling a period of time at which said plurality of EL elements emit light in one frame period;

25 said plurality of EL elements comprise a first electrode and a second electrode; and a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period; and

adjacent pixels of said plurality of pixels share a power source supply line for

supplying a voltage applied to said second electrode,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

5 6. An electro-optical device comprising a plurality of pixels including a plurality of EL elements, characterized in that:

said electro-optical device provides a gray scale display by controlling a sum of lengths of sub-frame periods in which said plurality of EL elements emit light out of said plurality of sub-frame periods included in one frame period;

10 said plurality of EL elements comprise a first electrode and a second electrode; and
 a potential of said first or said second electrode changes in such a manner that a
 polarity of an EL driving voltage is inverted for each one frame period; and

adjacent pixels of said plurality of pixels share a power source supply line for supplying a voltage applied to said second electrode,

15 wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

7. An electro-optical device comprising a plurality of pixels, said device including a plurality of EL elements, a plurality of EL driving TFTs for controlling light emission of said plurality of EL elements, a plurality of switching TFT for controlling driving of said plurality of EL driving TFT, characterized in that:

said electro-optical device provides a gray scale display by controlling a period of time at which said plurality of EL elements emit light in one frame period;

25 said plurality of EL elements comprise a first electrode and a second electrode; and
 a potential of said first or said second electrode changes in such a manner that a
 polarity of an EL driving voltage is inverted for each one frame period; and

a power source supply line for supplying a voltage applied to said second electrode is shared among adjacent pixels of said plurality of pixels,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

8. An electro-optical device comprising a plurality of pixels, said device including a plurality of EL elements, a plurality of EL driving TFTs for controlling light emission of said plurality of EL elements, a plurality of switching TFTs for controlling driving of said plurality of EL driving TFTs, characterized in that:

said electro-optical device provides a gray scale display by controlling a sum of lengths of sub-frame periods in which said plurality of EL elements emit light out of said plurality of sub-frame periods included in one frame period;

said plurality of EL elements comprise a first electrode and a second electrode; and a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one sub-frame period; and

adjacent pixels of said plurality of pixels share a power source supply line for supplying a voltage applied to said second electrode,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

9. An electro-optical device comprising a plurality of pixels, said device including a plurality of EL elements, a plurality of EL driving TFTs for controlling light emission of said plurality of EL elements, a plurality of switching TFTs for controlling driving of said plurality of EL driving TFTs, characterized in that:

said electro-optical device provides a gray scale display;

said plurality of EL elements comprise a first electrode and a second electrode; and a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

10. An electro-optical device comprising a plurality of pixels, said device including a plurality of EL elements, a plurality of EL driving TFTs for controlling light emission of said plurality of EL elements, a plurality of switching TFTs for controlling driving of said plurality of EL driving TFTs, characterized in that:

5 said electro-optical device provides a gray scale display by inputting an analog video signal to a source region of said switching TFTs;

 said plurality of EL elements comprise a first electrode and a second electrode; and
 a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period; and

10 adjacent pixels of said plurality of pixels share a power source supply line for supplying a voltage applied to said second electrode,

 wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

15 11. An electro-optical device according to ^{Claim 3} ~~any one of claims 3, 4, and 7-10~~, wherein said EL driving TFT and said switching TFT comprise an n-channel type TFT or a p-channel type TFT.

20 12. An electro-optical device according to ^{Claim 1} ~~any one of said claims 1 to 10~~, wherein said light emission of said plurality of EL elements is controlled with said digital data signal input to said switching TFT.

25 13. An electro-optical device according to ^{Claim 1} ~~any one of claims 1 to 10~~, wherein said one frame period is 1/120 s or less.

 14. An electro-optical device according to claim 9 ~~or 10~~, wherein said EL layer incorporated in said plurality of EL elements comprises a low molecular organic material selected from the group consisting of Alq₃ (tris-8-quinolylite-aluminum), and TPD

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